

SERVICE MANUAL

STEREO RECEIVER

 **SANYO**

DCX 1515K
(EUROPE)



SPECIFICATIONS (Nominal)

FM TUNER SECTION

Frequency Range	88 MHz to 108 MHz
Usable Sensitivity (IHF)	4.5 μ V
Image Rejection (98 MHz)	41 dB
IF Rejection (98 MHz)	65 dB
Signal to Noise Ratio	57 dB
Harmonic Distortion (100 % mod.)	

Mono	0.3 %
Stereo	1.5 %
Capture Ratio	1.5 dB
Stereo Separation (at 1 kHz)	35 dB

AM TUNER SECTION

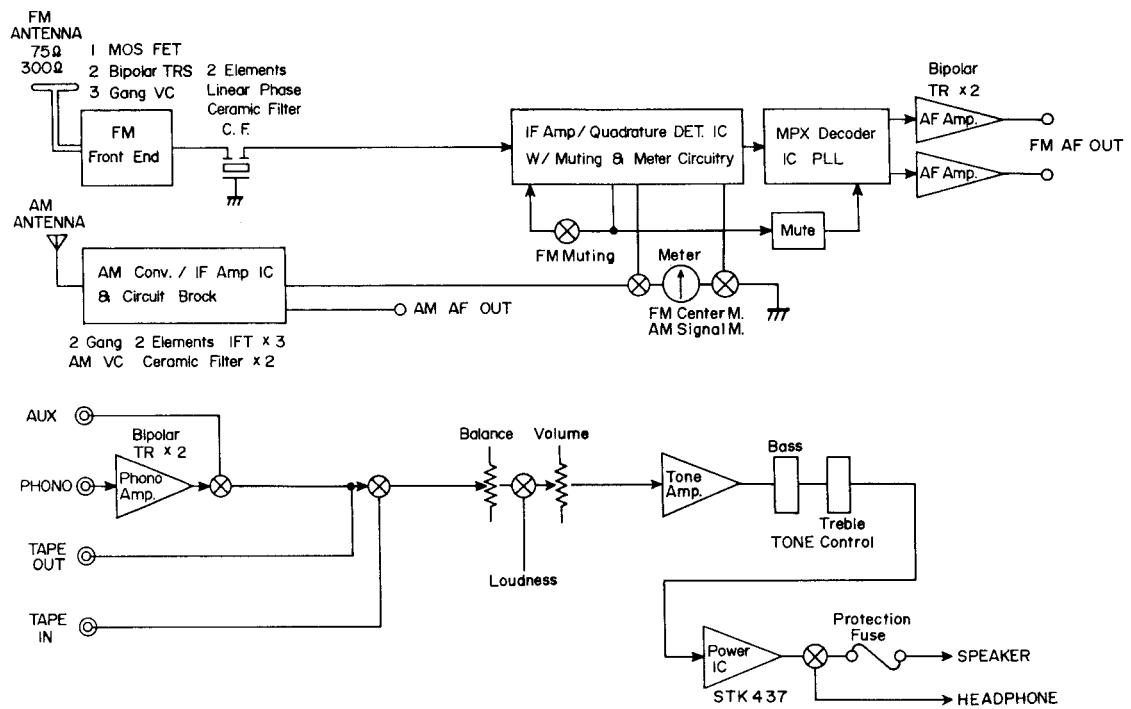
Frequency Range	535 kHz to 1,605 kHz
Usable Sensitivity (S/N 20 dB)	300 μ V
Image Rejection (1,000 kHz)	35 dB
IF Rejection (1,000 kHz)	35 dB
Selectivity at ± 10 kHz	30 dB
Signal to Noise Ratio	40 dB

AUDIO SECTION

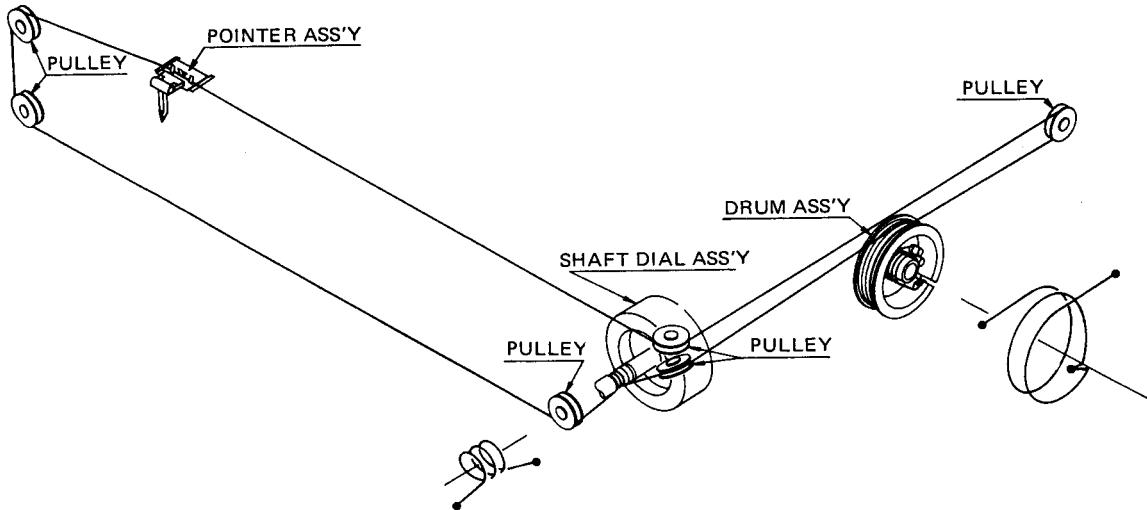
Continuous Power Output (at 8 ohm)	
Both Channel Driven at 1 kHz	10 W + 10 W
Harmonic Distortion at Rated Power	1 %
Frequency Response	40 Hz – 30 kHz
Input Sensitivity/Impedance	
PHONO	2.7 mV/30 kohm
TAPE	340 mV/70 kohm
MIC	5 mV/50 kohm
Tone Control Response	
Bass Control at 100 Hz	+11 dB, -9 dB
Treble Control at 10 kHz	+9 dB, -11 dB
Loudness Control at -30 dB Position	
at 100 Hz	+9 dB
at 10 kHz	+9 dB
GENERAL	
Power Requirement	AC: 110/120/220/240 V 50/60 Hz
Power Consumption	60 W

—Specifications are subject to change without notice.—

FUNCTIONAL BLOCK DIAGRAM



DIAL CORD STRINGING



NOTE: Check to see that the dial cord is correctly strung by turning the dial.

AM-FM RF/IF AMP MPX ADJUSTMENT

AM ADJUSTMENT

For Alignment: Maintain generator output as low as possible for suitable indication.

Step	Adjusting circuit	Connection		Position of tuning dial	Adjustment	V.T.V.M. Oscilloscope
		Input	Output			
1	IF	Connect 455 kHz sweep generator to VC 4.	Connect oscilloscope to test point TP 4.	Near max. capacity of VC at position of non interference	AM 1st 9-21310 AM DET 9-21291	 455 kHz
2	RF	Connect AM generator to EXT AM ANT and GND terminals. Set to 600 kHz, Modulate with 30 %, 1 kHz.	Connect oscilloscope and AC. V.T.V.M. to Record output	600 kHz	AM ANT 9-25050 AM OSC 9-20851	Max.
3		Change frequency to 1400 kHz.		1400 kHz	TC4 TC5	Max.
4	Repeat adjustments.					

1. Variable capacitor completely closed
2. Set the dial pointer to very left line dial scale.
3. Connect sweep generator, SG, V.T.V.M. and oscilloscope.
4. Function switch to "AM"
5. Use a screwdriver with plastic grip for all adjustment.

FM ADJUSTMENT

Step	Adjusting circuit	Connection		Position of Tuning dial	Adjustment	V.T.V.M. Oscilloscope
		Input	Output			
1	IF	Connect sweep 10.7 MHz generator to test point VC 2 through 0.01 μ F.	Connect oscilloscope to test point TP 2.	Near max. capacity of VC, at position of non interference	FM IFT In FRONT END	 10.7 MHz
2	Quadrature Detector		Connect oscilloscope to test point TP 1.		FM QUADRATURE COIL 9-21320	 10.7 MHz
3	RF	Connect FM RF generator through two 120-ohm resistors to FM ANT screw terminals. Set generator to 90 MHz, modulate with 400 Hz to provide ± 75 kHz deviation. Set generator output attenuator as low as possible.	Connect V.T.V.M. to Record output	90 MHz	LA LR	Max.
4		Change generator setting to 106 MHz.	Connect V.T.V.M. to Record output.	106 MHz	TCA TCR	Max.
5	Repeat adjustments.					

1. Variable capacitor completely closed
2. Set the dial pointer to very left line of dial scale.
3. Connect sweep generator, FM SG, V.T.V.M. and oscilloscope. FM ANT input impedance is 300 ohm.
4. Function switch to "FM"
5. Use a screwdriver with plastic grip for all adjustments.

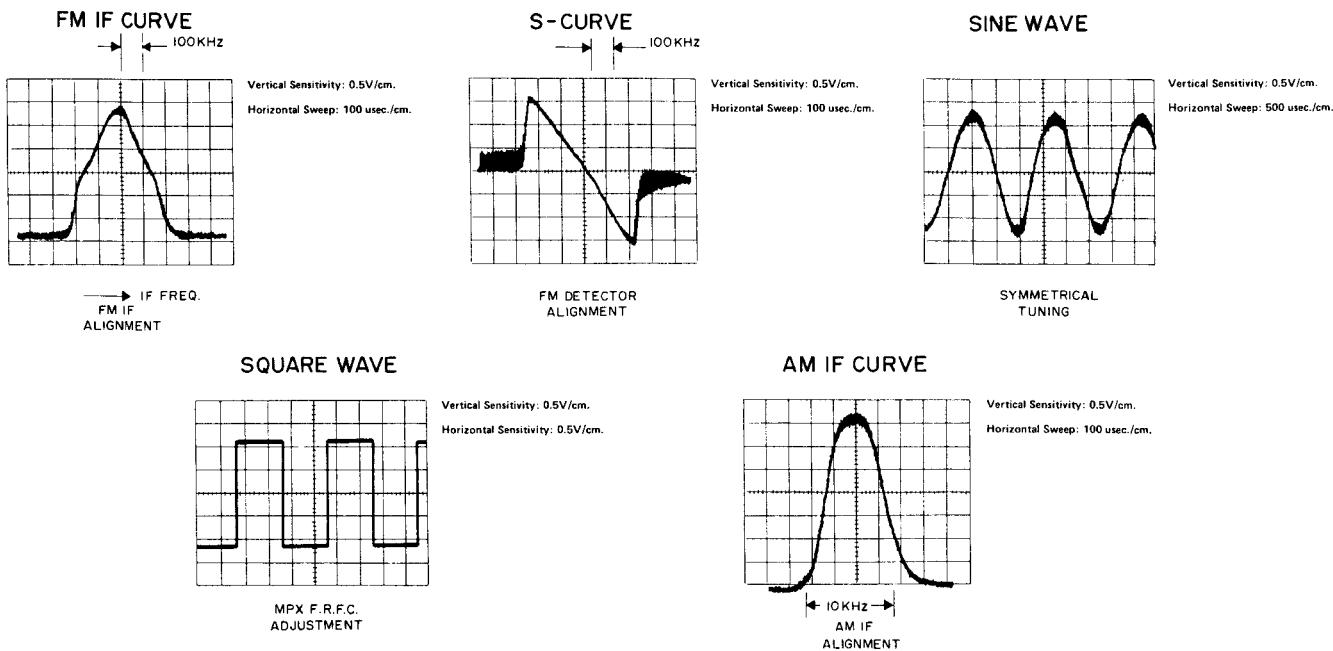
FM MPX ADJUSTMENT

Step	Adjusting circuit	Connection		Position of tuning dial	Adjustment	
		Input	Output			
1	PLL IC FO (19 kHz) Adjustment	None	Connect Frequency counter or synchroscope to TP 3.	Near max. capacity of VC, at position of non interference	Adjust VR 01 (5k-B) so that frequency counter or synchroscope indicate 19 kHz	
2	FM STEREO Signal Separation	As above Steps 3,4 except modulation Modulate LEFT channel ± 67.5 kHz – 400 Hz audio and ± 7.5 kHz – 19 kHz pilot carrier. As above except modulate RIGHT Channel.	Connect V.T.V.M. to output terminal (R channel).		VR 02 (1k-B)	V.T.V.M. Min.
3		Connect V.T.V.M. to output terminal (L channel).				
3	Repeat steps 1,2. Set at position with max. channel separation.					

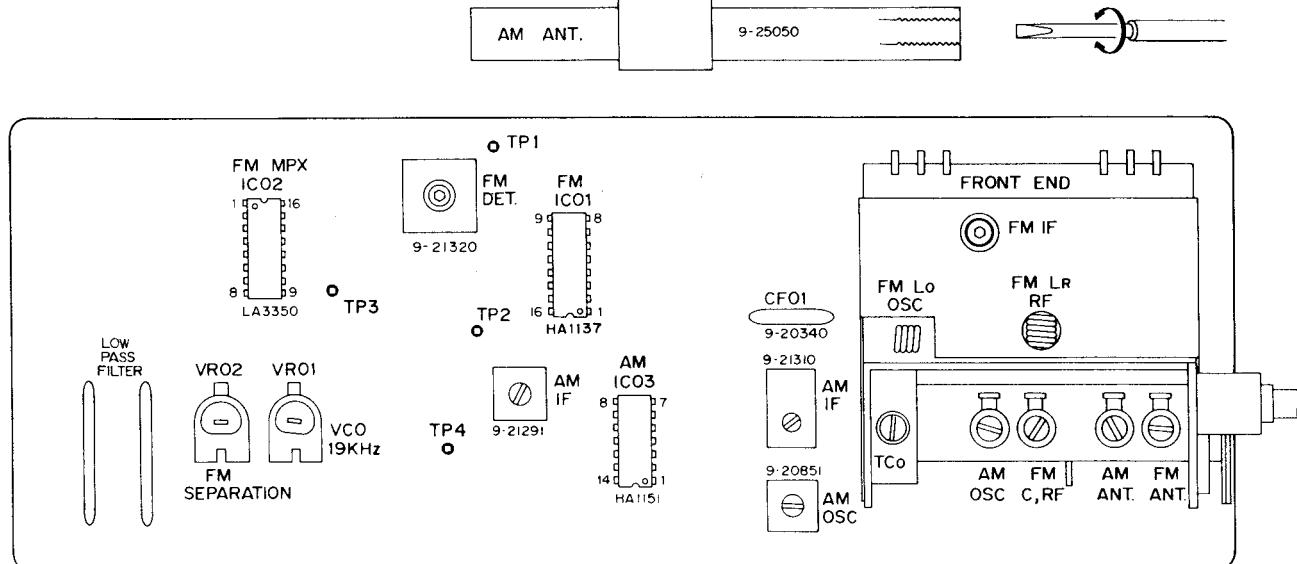
1. Variable capacitor completely closed
2. Connect FM stereo SG and V.T.V.M.
3. Function switch to "FM"
4. Use a screwdriver with plastic grip for all adjustments.

ALIGNMENT WAVE FORMS

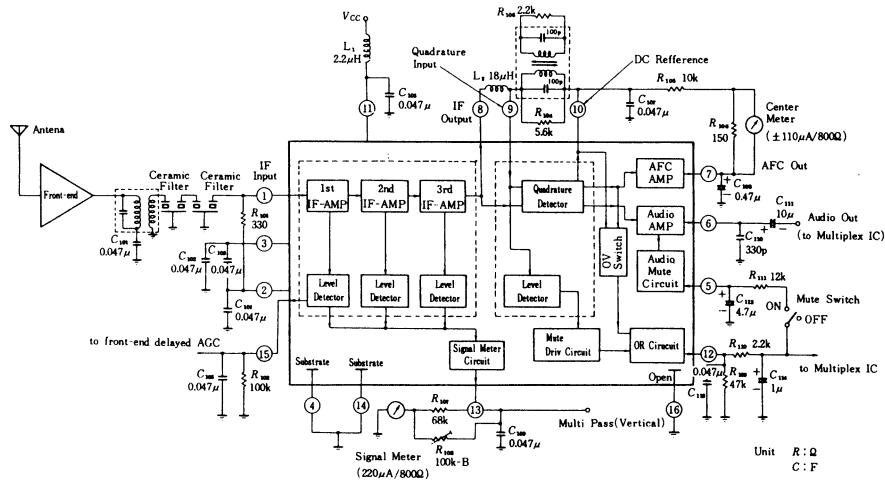
WITH OSCILLOSCOPE TIME BASE SETTINGS



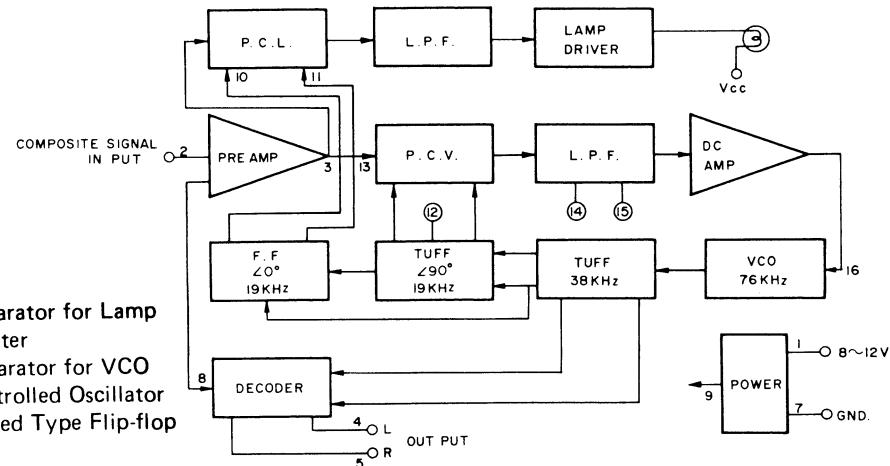
AM-FM RF/IF MPX BOARD LAYOUT



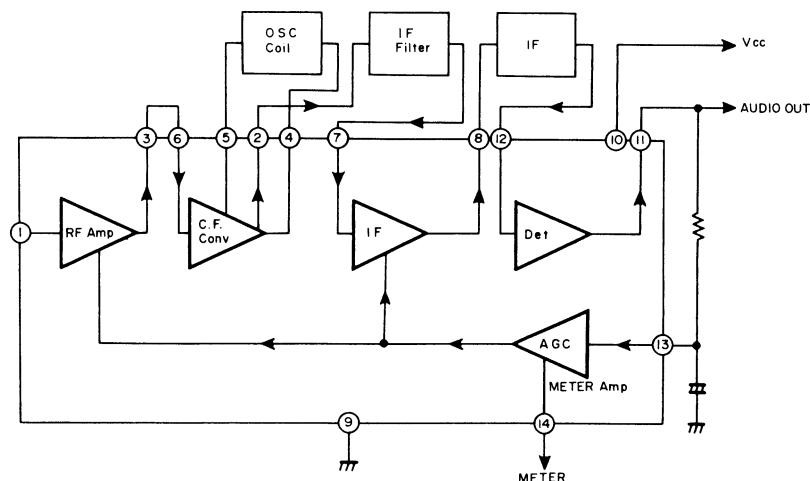
FM IF IC HA1137 SIGNAL FLOW



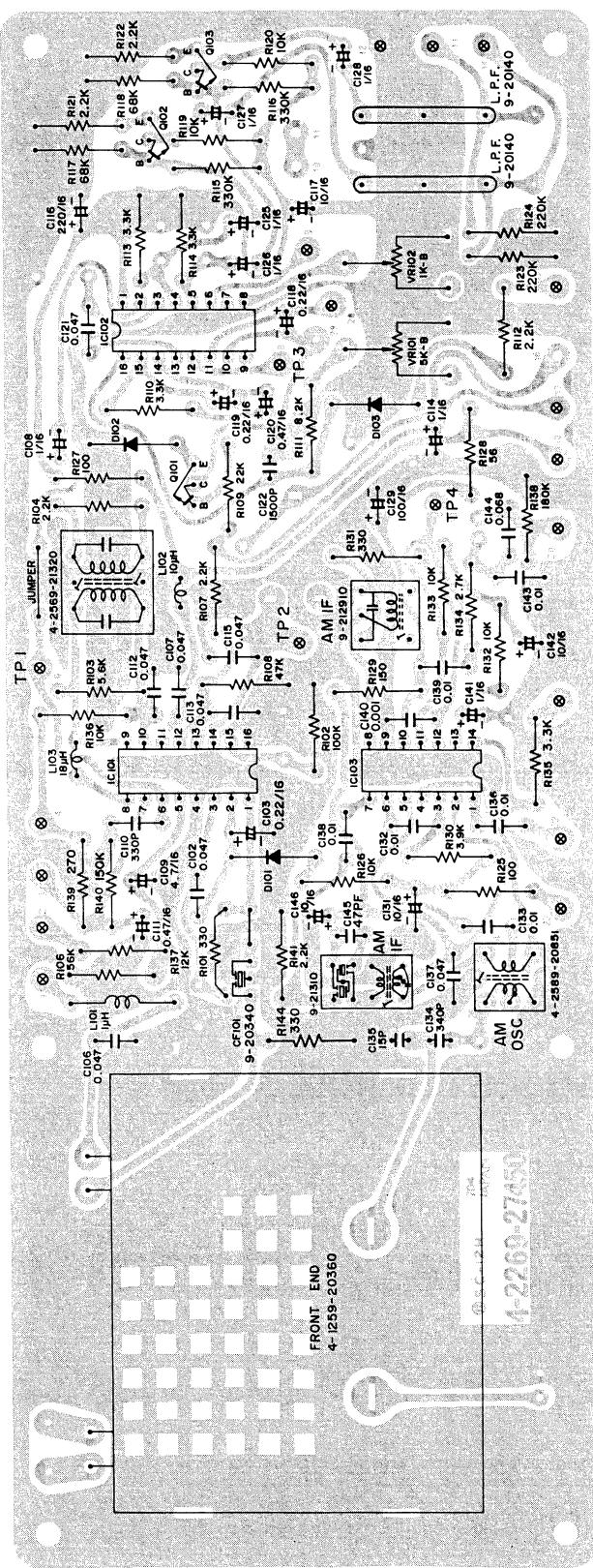
FM MPX IC LA3350 SIGNAL FLOW



AM RF IF IC HA1151 SIGNAL FLOW



AM-FM RF/IF MPX P.C.BOARD (BOTTOM VIEW)



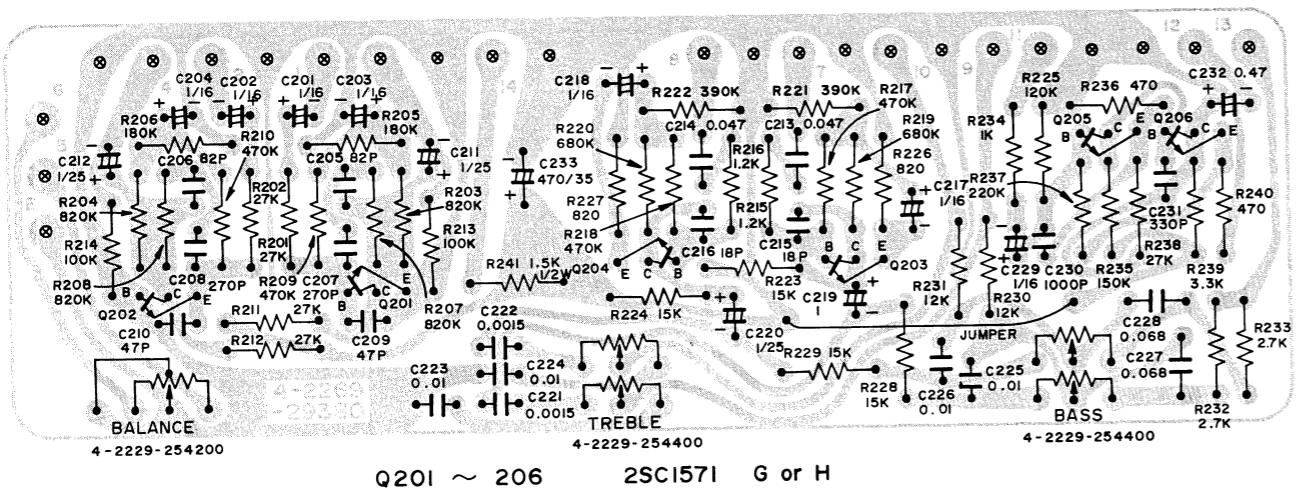
TRANSISTOR FRONT VIEW



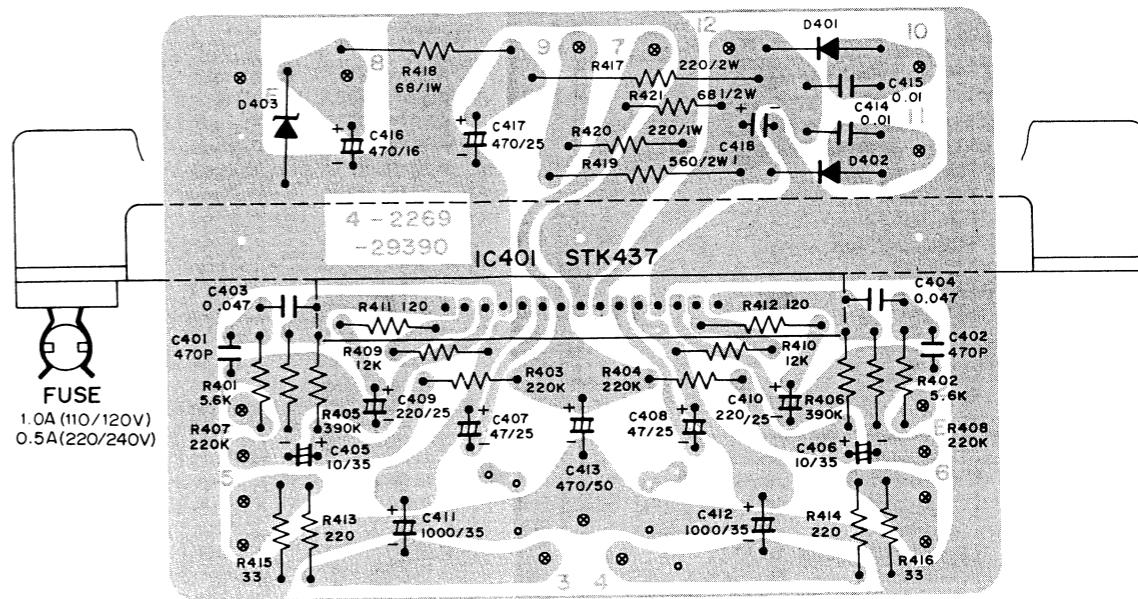
TRANSISTOR DC VOLTAGES					
SYMBOL NO.	DEVICE	B	C	E	
Q01	2SC536	1.1V	0.5V	0.5V	
Q02	2SC1571	2.0V	6.0V	1.4V	
Q03	2SC1571	2.0V	6.0V	1.4V	

VOLTAGENS

PRE TONE CONTROL P.C.BOARD (BOTTOM VIEW)



MAIN AMP & POWER SUPPLY P.C.BOARD (BOTTOM VIEW)



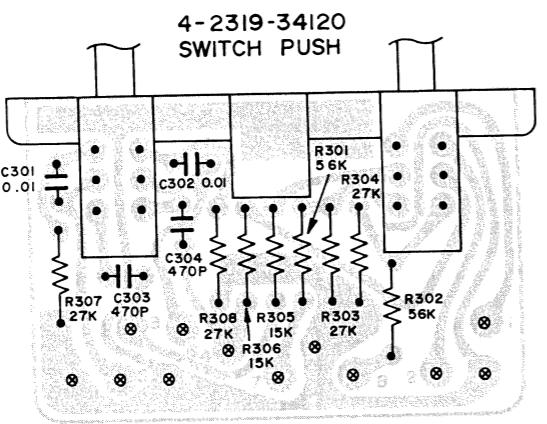
TRANSISTOR FRONT VIEW



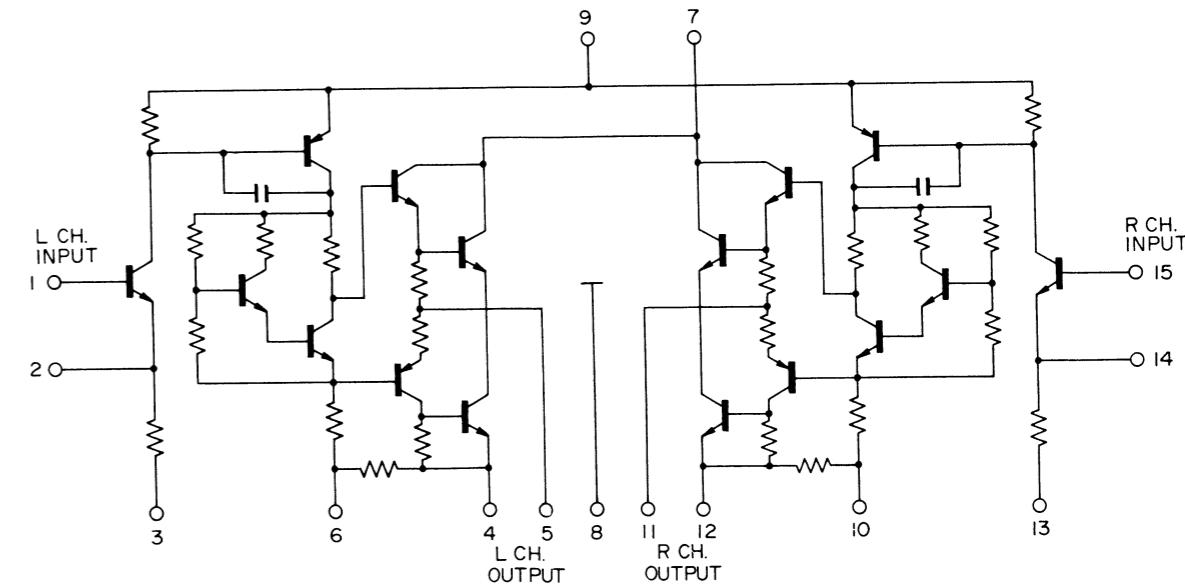
2SC1571

TRANSISTOR DC VOLTAGES				
SYMBOL NO.	DEVICE	B	C	E
Q01,02	2SC1571	0.58V	6.6V	0V
Q03,04	2SC1571	1.3V	7.6V	0.8V
Q05	2SC1571	0.7V	2.8V	0.2V
Q06	2SC1571	2.8V	7.5V	2.2V

SWITCH P.C.BOARD (BOTTOM VIEW)



MAIN AMP IC STK437 EQUIVALENT CIRCUIT



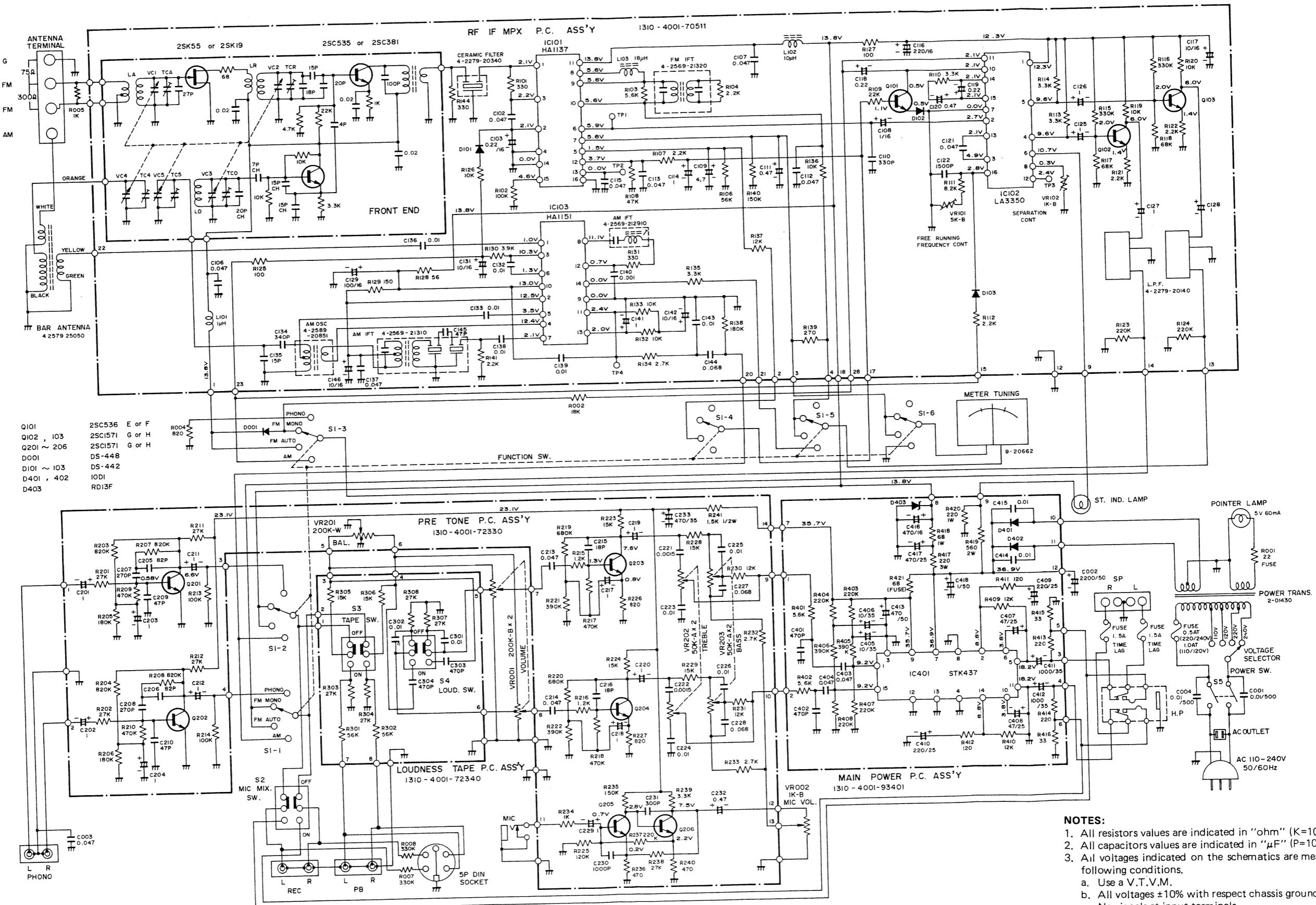
PARTS LIST

Ref.No.	Parts Number	Description	Q'ty
RF IF MPX P.C.B. ASSY			
VR01	131 0 4001 70512	RF IF MPX P.C.B. Assy	1
	4 1252 00060	Front End	1
	4 2229 22842	Variable Resistor 5k-B	1
	4 2229 24210	Variable Resistor 1k-B	1
	4 2569 21291	IF Trans. AM	1
	4 2569 21310	IF Trans. AM	1
L01	4 2569 21320	IF Trans. FM	1
	4 2589 20851	OSC Coil, AM	1
L02	4 2539 20120	IF Trap	1
L03	4 2539 20370	10 μ H \pm 10%	1
CF01	4 2539 20380	18 μ H \pm 5%	1
	4 2279 20340	Ceramic Filter	1
	4 2279 20140	Rescap	2
CAPACITORS			
C02	C1HYSZ473A	Ceramic 0.047 μ F 50V \pm 80, \pm 20%	1
C03	C1CUEX224A	Alsilcon 0.22 μ F 16V \pm 40, \pm 20%	1
C06,07	C1HYSZ473A	Ceramic 0.047 μ F 50V \pm 80, \pm 20%	2
C08	C1CUEX105A	Alsilcon 1 μ F 16V \pm 40, \pm 20%	1
C09	C1CRE-475A	Electrolytic 4.7 μ F 16V	1
C10	C1HCSK331SL	Ceramic 330 pF 50V \pm 10%	1
C11	C1CUEX474A	Alsilcon 0.47 μ F 16V \pm 40, \pm 20%	1
C12,13	C1HYSZ473A	Ceramic 0.047 μ F 50V \pm 80, \pm 20%	2
C14	C1CRE-105A	Electrolytic 1 μ F 16V	1
C15	C1HYSZ473A	Ceramic 0.047 μ F 50V \pm 80, \pm 20%	1
C16	C1CRE-227A	Electrolytic 220 μ F 16V	1
C17	C1CRE-106A	Electrolytic 10 μ F 16V	1
C18,19	C1CUEX224A	Alsilcon 0.22 μ F 16V \pm 40, \pm 20%	2
C20	C1CUEX474A	Alsilcon 0.47 μ F 16V \pm 40, \pm 20%	1
C21	C1HFRM473A	Mylar 0.047 μ F 50V \pm 20%	1
C22	C1HSEJ152A	Styrol 1500 pF 50V \pm 5%	1
C25,26	C1CUEX105A	Alsilcon 1 μ F 16V \pm 40, \pm 20%	4
C27,28			
C29	C1CRE-107A	Electrolytic 100 μ F 16V	1
C31	C1CRE-106A	Electrolytic 10 μ F 16V	1
C32,33	C1HFRM103A	Mylar 0.01 μ F 50V \pm 20%	2
C34	C1HSEJ341A	Styrol 340 pF 50V \pm 5%	1
C35	C1HCSJ150WK	Ceramic 15 pF 50V \pm 5%	1
C36	C1HFRM103A	Mylar 0.01 μ F 50V \pm 20%	1
C37	C1HYSZ473A	Ceramic 0.047 μ F 50V \pm 80, \pm 20%	1
C38,39	C1HFRM103A	Mylar 0.01 μ F 50V \pm 20%	2
C40	C1HYSK102R	Ceramic 0.001 μ F 50V \pm 10%	1
C41	C1CUEX105A	Alsilcon 1 μ F 16V \pm 40, \pm 20%	1
C42	C1CRE-106A	Electrolytic 10 μ F 16V	1
C43	C1HFRM103A	Mylar 0.01 μ F 50V \pm 20%	1
C44	C1HFRM683A	Mylar 0.068 μ F 50V \pm 20%	1
C45	C1HCSK470SL	Ceramic 47 pF 50V \pm 10%	1
C46	C1CRE-106A	Electrolytic 10 μ F 16V	1
SEMICONDUCTORS			
D01,02	205 5 9040 44210	Diode DS-442	3
03			
IC01	IKK-HA1137	IC HA1137	1
IC02	206 5 0743 35012	IC LA3350 PLL FOR MPX	1
IC03	IKK-HA1151	IC HA1151	1
Q01	203 5 5100 53640	TR 2SC536D	1
Q02,03	203 5 5151 57170	TR 2SC1571G	2
RESISTORS			
R01	R2EDSJ331A	Carbon 330 1/4W \pm 5%	1
R02	R2EDSJ104A	Carbon 100k 1/4W \pm 5%	1
R03	R2EDSJ562A	Carbon 5.6k 1/4W \pm 5%	1
R04	R2EDSJ222A	Carbon 2.2k 1/4W \pm 5%	1
R06	R2EDSJ563A	Carbon 56k 1/4W \pm 5%	1
R07	R2EDSJ222A	Carbon 2.2k 1/4W \pm 5%	1
R08	R2EDSJ473A	Carbon 47k 1/4W \pm 5%	1
R09	R2EDSJ223A	Carbon 22k 1/4W \pm 5%	1
R10	R2EDSJ332A	Carbon 3.3k 1/4W \pm 5%	1
R11	R2EDSJ822A	Carbon 8.2k 1/4W \pm 5%	1
R12	R2EDSJ222A	Carbon 2.2k 1/4W \pm 5%	1

PARTS LIST

Ref.No.	Parts Number	Description	Q'ty
PRE TONE P.C.B. ASSY			
VR01	131 0 4001 72330	PRE TONE P.C.B. Assy	1
	4 2229 25420	VR 200k, Balance	1
VR02	4 2229 25440	VR 50k-A, Treble	1
VR03	4 2229 25440	VR 50k-A, Bass	1
CAPACITORS			
C01,02	C1CUBX105A	Alsilcon 1 μ F 16V \pm 40, \pm 20%	2
C03,04	C1CRB-105A	Electrolytic 1 μ F 16V	2
C05,06	C1HCSK820SL	Ceramic 82 pF 50V \pm 10%	2
C07,08	C1HCSK271SL	Ceramic 270 pF 50V \pm 10%	2
C09,10	C1HCSK470SL	Ceramic 47 pF 50V \pm 10%	2
C11,12	C1EUBM105A	Alsilcon 1 μ F 25V \pm 20%	2
C13,14	C1HFRM473A	Mylar 0.047 μ F 50V \pm 20%	2
C15,16	C1HCSK180SL	Ceramic 18 pF 50V \pm 10%	2
C17,18	C1CRB-105A	Electrolytic 1 μ F 16V	2
C19,20	C1EUBM105A	Alsilcon 1 μ F 25V \pm 20%	2
C21,22	C1HFRM152A	Mylar 0.0015 μ F 50V \pm 20%	2
C23,24	C1HFRM103A	Mylar 0.01 μ F 50V \pm 20%	4
C27,28	C1HFRM683A	Mylar 0.068 μ F 50V \pm 20%	2
C29	C1CUBX105A	Alsilcon 1 μ F 16V \pm 40, \pm 20%	1
C30	C1HYSK102R	Ceramic 0.001 μ F 50V \pm 10%	1
C31	C1HCSK331SL	Ceramic 330 pF 50V \pm 10%	1
C32	C1EUBM474A	Alsilcon 0.47 μ F 25V \pm 20%	1
C33	C1VRB-477A	Electrolytic 470 μ F 35V	1
SEMICONDUCTORS			
Q01,02	203 5 5151 57170	TR 2SC1571G	6
03,04			
05,06			
RESISTORS			
R01,02	R2EDSJ562A	Carbon 5.6k 1/4W \pm 5%	2
R03,04	R2EDSJ224A	Carbon 220k 1/4W \pm 5%	2
R05,06	R2EDSJ394A	Carbon 390k 1/4W \pm 5%	2
R07,08	R2EDSJ224A	Carbon 220k 1/4W \pm 5%	2
R09,10	R2EDSJ123A	Carbon 12k 1/4W \pm 5%	2
R11,12	R2EDSJ121A	Carbon 120 1/4W \pm 5%	2
R13,14	R2EDSJ221A	Carbon 220 1/4W \pm 5%	2
R15,16	R2EDSJ330A	Carbon 33 1/4W \pm 5%	2
R17	R3WXPK221A	Oxide Metal Film 220 3W \pm 10%	1
R18	R3AXPK680A	Oxide Metal Film 68 1W \pm 10%	1
R19	R3DXPK561A	Oxide Metal Film 560 2W \pm 10%	1
R20	R3AXPK221A	Oxide Metal Film 220 1W \pm 10%	1
R21	R2HZPK680A	Fuse 68 1/2W \pm 10%	1
LOUDNESS, TAPE, SW, P.C.B. ASSY			
	1310 4001 72340	Loudness, Tape, SW P.C.B. Assy	1
	4 2319 34120	Switch Push	1
CAPACITORS			
C01,02	C1HFRM103A	Mylar 0.01 μ F 50V \pm 20%	2
C03,04	C1HYSK471R	Ceramic 470 pF 50V \pm 10%	2
RESISTORS			
R01,02	R2EDSJ563A	Carbon 56k 1/4W \pm 5%	2
R03,04	R2EDSJ273A	Carbon 27k 1/4W \pm 5%	2
R05,06	R2EDSJ153A	Carbon 15k 1/4W \pm 5%	2
R07,08	R2EDSJ273A	Carbon 27k 1/4W \pm 5%	2
NOTE:			
1.	Part orders must contain Model Number, Part Number and Description.		
2.	Ordering quantity of screws and/or resistors must be multiple of 10 pcs.		

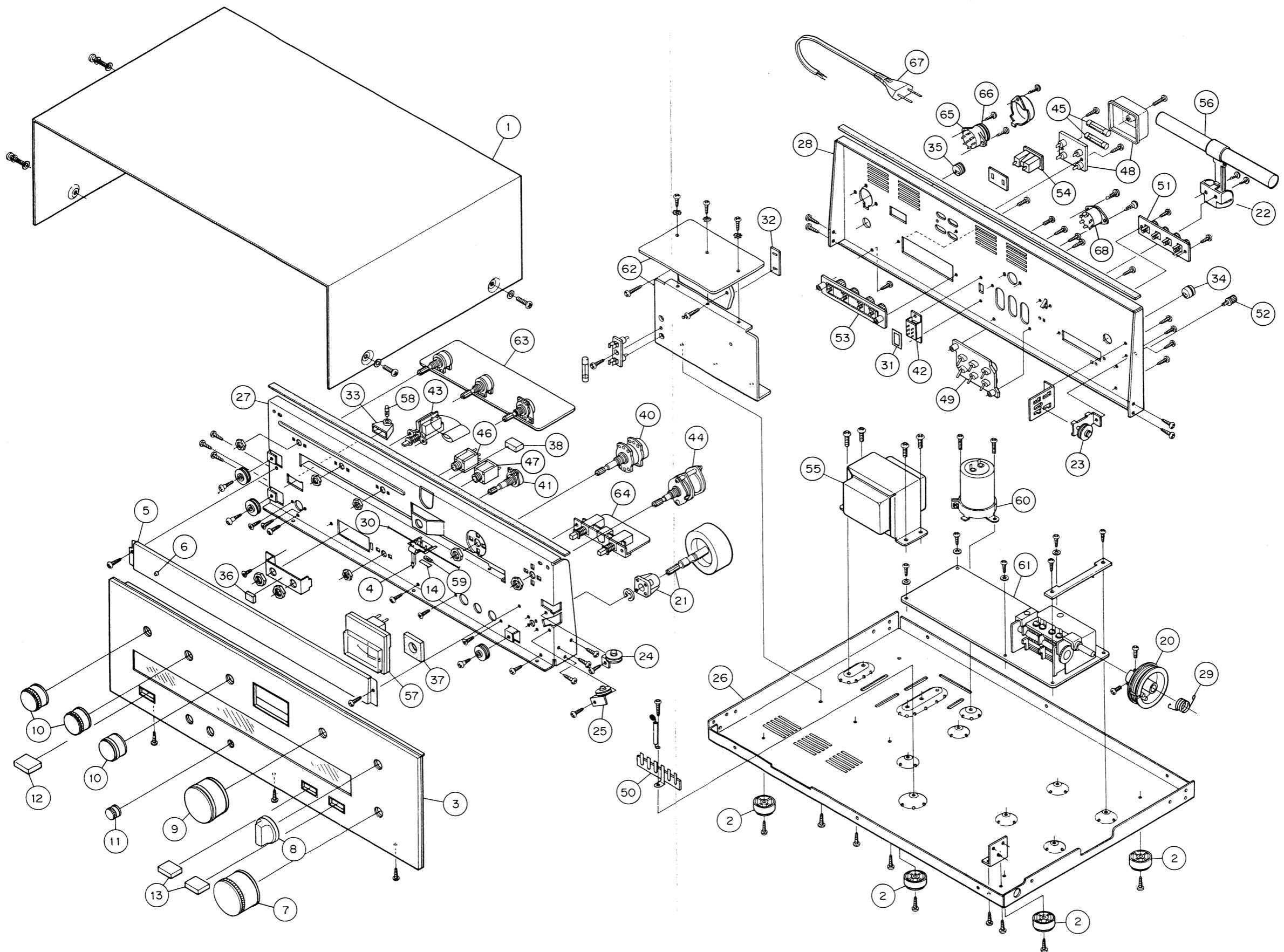
SCHEMATIC DIAGRAM



NOTES:

1. All resistors values are indicated in "ohm" ($K=10^3$, $M=10^6$).
2. All capacitors values are indicated in " μF " ($P=10^{-12}$)
3. All voltages indicated on the schematics are measured under the following conditions.
 - a. Use a V.T.V.M.
 - b. All voltages $\pm 10\%$ with respect chassis ground
 - c. No signals at input terminals
 - d. AC input at 240 volts 50 Hz
4. This is a fundamental schematics diagram. Some products may be modified without notice.

CABINET & CHASSIS EXPLODED VIEW



PARTS LIST

Ref.No.	Parts Number	Description	Q'ty
PACKING PARTS LIST			
	131 6 1139 60801	Box Corrugate-EXP	1
	131 6 2119 01440	Bag Polyethylene-EXP	1
	131 0 6001 03400	Pad Assy (Right, Left)	2
ACCESSORIES PARTS LIST			
	4 2449 20230	Antenna FM	1
	131 6 4119 63901	Explanatory Booklet	1
CABINET PARTS LIST			
1	131 2 1410 15000	Cover	1
2	131 2 1801 13300	Leg (Plate Bottom)	4
APPEARANCE PARTS LIST			
3	131 0 1016 22801	Panel Decorate Assy	1
4	131 0 3011 16600	Pointer Assy	1
5	131 2 1201 28301	Plate Dial	1
6	131 2 1504 10902	Plate Sign Lamp	1
7	131 0 1001 36901	Knob Assy (Tuning)	1
8	131 0 1001 37301	Knob Assy (Function)	1
9	131 0 1001 37001	Knob Assy (Volume)	1
10	131 0 1001 37101	Knob Assy (Balance, Tone)	3
11	131 0 1001 37201	Knob Assy (MIC Volume)	1
12	131 2 1601 40201	Knob (Power Switch)	1
13	131 2 1601 40302	Knob (Loudness, Tape Monitor)	2
14	131 2 6308 16400	Filter	1
CHASSIS PARTS LIST			
20	131 0 3002 11300	Drum Assy	1
21	131 0 3003 19200	Shaft Dial Assy	1
22	131 0 3008 11900	Support Antenna Assy	1
23	131 0 3020 05800	Pulley Assy (Panel Rear)	1
24	131 0 3020 07100	Pulley Assy (Upper Side)	1
25	131 0 3020 07200	Pulley Assy (Under Side)	1
26	131 2 1105 17600	Plate Bottom	1
27	131 2 3305 20200	Panel Front	1
28	131 2 3306 22402	Panel Rear	1
29	131 2 4111 00400	Spring Rope	1
30	131 2 4112 10200	Rope 0.5	1
31	131 2 6107 11600	Plate Sever	1
32	131 2 6107 19300	Plate Sever	1
33	131 2 6111 11500	Bushing, Stereo Ind.	1
34	131 2 6111 14200	Bushing, Antenna Lead	1
35	131 2 6111 14200	Bushing, AC Cord	1
36	131 2 4208 17800	Spacer (MIC)	1
37	131 2 4208 20400	Spacer (Tuning Meter)	1
38	131 2 4208 17800	Spacer (Dial Panel)	1
ELECTRICAL PARTS LIST			
40	4 2229 25430	VR 200k-B Master Volume (VR01)	1
41	4 2229 25450	VR 1k-B MIC Volume (VR02)	1
42	4 2319 22520	6P Slide Switch MIC Mix.	1
43	4 2319 23910	Switch Push 4P (Power Switch)	1
44	4 2319 34110	Switch Rotary (Function)	1
45	4 2349 20850	Fuse 1.5A (Protector)	2
46	4 2359 21670	Jack Headphone	1
47	4 2359 21910	Jack MIC	1
48	4 2359 22030	Fuse Holder 2P (Protector)	1
49	4 2359 22920	Socket 6P	1
50	4 2379 20480	Terminal Lug 1-5P L	1
51	4 2379 21460	Terminal 4P (Antenna)	1
52	4 2379 21650	Terminal 1P (Ground)	1
53	4 2379 21710	Terminal 4P (Speaker)	1
54	4 2359 21960	AC Outlet	1
55	4 2512 01430	Power Transformer	1
56	4 2579 25050	Bar Antenna AM	1
57	4 5119 20662	Meter Tuning	1
58	4 6129 20263	Lamp 6.3V 25mA (Stereo Ind.)	1
59	4 6129 20520	Lamp 5V 60mA (Pointer)	1

Ref.No.	Parts Number	Description	Q'ty
ELECTRICAL PARTS LIST			
C01	202 5 9530 44810	Diode, DS-448	1
60C02	C1HYDP103A 4 2239 20530	Ceramic 0.01 μ F 500V +100,-0%	1
C03	C1HYDZ473A	Electrolytic 2200 μ F 50V	1
C04	C1HYDP103A	Ceramic 0.047 μ F 50V +80,-20%	1
R01	R2HZPK220A	Ceramic 0.01 μ F 500V +100,-0%	1
R02	R2EDPJ183A	Fuse 22 1/2W \pm 10%	1
R04	R2EDPJ821A	Carbon 18k 1/4W \pm 5%	1
R05	R2EDPJ102A	Carbon 820 1/4W \pm 5%	1
R07,08	R2EDPJ334A	Carbon 1k 1/4W \pm 5%	1
61	131 0 4001 70512	Carbon 330k 1/4W \pm 5%	1
62	131 0 4001 93401	RF IF MPX P.C.B. Assy	1
63	131 0 4001 72330	Main AMP & Power Supply	1
64	131 0 4001 72340	P.C.B. Assy	1
65	4 2359 21221	PRE TONE P.C.B. Assy	1
66	4 2369 20550	Loudness,Tape, SW P.C.B. Assy	1
67	4 2439 20526	Power Select Socket	1
68	4 2359 20190	Power Select Plug	1
		Power Cord	1
		DIN Socket (5P)	1

NOTE:

1. Part orders must contain Model Number, Part Number and Description
2. Ordering quantity of screws and/or resistors must be multiple of 10 pcs